NHMRC Evidence Statement Form

Table 1: NHMRC Evidence Statement for clinical question: COL1-2b:
"What is the optimal approach to resection of colorectal cancers?"

PICO COL1-2b: *In patients diagnosed with rectal cancer, what is the optimal resection strategy to achieve the best outcomes in terms of length and quality of life?*		**Report body of evidence tables**
1. Evidence base *(number of studies (quantity), level of evidence and risk of bias in the included studies – see body of evidence tables in report)*		
Outcome data from 28 level II randomised controlled trials (RCTs) were reported across 36 papers, all of which examined the effect of rectal cancer resection type on cancer related outcomes including mortality, cancer specific survival, disease-free survival, local recurrence and metastases, morbidity, complications and other adverse events including: quality of life, pain and sexual dysfunction. Twenty of these studies compared laparoscopic to open rectal cancer resection while the remaining seven studies compared the following surgical interventions: Single Port Laparoscopic Rectal Surgery (SPLRS) with Conventional Laparoscopic Surgery (CLS) (Bulut et al., 2015), Endoscopic Mucosal Resection with Circumferential Incision (CIEMR) against Endoscopic Mucosal Resection (EMR) (Huang et al., 2014), cylindrical Abdominoperineal Resection (APR) versus conventional APR (Han et al., 2012), Transanal Endoscopic Microsurgery (TEMS) against Low Anterior Resection (LAR) (Chen et al., 2013), TEMS against Laparoscopic Total Mesorectal Excision (TME) (Lezoche et al., 2005; Lezoche et al., 2009), Endoluminal Loco-Regional Resection (ELRR) against TME (Lezoche et al., 2012) and laparoscopic anterior resection against TEMS anterior resection (Chen et al., 2015). The majority of papers reporting RCT data (n=35) had an unclear or at risk overall risk of bias as determined by the Cochrane risk of bias tool and only one study (Joeng et al., 2014) was determined to have a low risk of bias. In addition to this data from three meta analyses (Arezzo et al., 2013; Vennix et al., 2014; Zhao et al., 2016) and one pooled analysis of data (Ng et al., 2014a) were also included in this review, all of which compared laparoscopic to open resection surgery. Two of these studies had a low risk of bias (Arezzo et al., 2013; Vennix et al., 2014) while the other (Zhao et al., 2016) had a moderate risk of bias. **Grade C**	A	**One or more level I studies with a low risk of bias or several level II studies with a low risk of bias**
	B	**One or two Level II studies with a low risk of bias or SR/several Level III studies with a low risk of bias**
	C	**One or two Level III studies with a low risk of bias or Level I or II studies with a moderate risk of bias**
	D	**Level IV studies or Level I to III studies/SRs with a high risk of bias**
2. Consistency *(if only one study was available, rank this component as 'not applicable') See body of evidence tables in report – results and p value (95% CI)*		
Overall survival	A	**All studies consistent**
	B	**Most studies consistent and inconsistency can be**

Survival outcomes, including 15, 10, 8, 5, 3, and 1 year survival and survival probability, were reported in 11 RCTs and one meta-analysis of eight studies (Zhao et al., 2016) comparing laparascopic versus open rectal cancer resection. Within these studies 5 year survival was reported in one study across stages of cancer (Braga et al., 2007) and one studied divided participants in to APR and AT patient and provided data for Dukes A stage patients separately (MRC CLASICC a, 2013). However, none of these trials showed significant differences between groups, however laparoscopic tended to have slightly higher survival overall for most of these comparisons. For other resection types the same non-significant outcomes were observed across five RCTs.
Grade A

Perioperative/30-day/overall mortality
Mortality outcomes, including 30-day mortality, perioperative mortality, and overall (>30 day) mortality, were all shown to be non-significantly different between laparoscopic and open surgery across 16 RCTs. Despite the lack of significant effects, open surgery consistently had higher rates of operative death and 30-day mortality. For other surgical interventions the same non-significant differences where observed for mortality data as reported across four RCTs.
Grade A

Disease free survival
Seven RCTs reported 3, 5, 8, and 10 year disease-free/recurrence-free/cancer specific survival. Of these studies three reported disease/recurrence free survival over stage 1-3 patients (Bonjer et al., 2015; Braga et al., 2007; Jeong et al., 2014). However, only one study showed a significant difference between laparoscopic and open surgery (COLOR 2 a, 2015) which reported higher 3 year disease free survival for patients undergoing laparoscopic resections (mean difference = 12.9%, 95% CI = 2.2, 23.6). All but one study (COREAN, 2014) showed non-significantly higher disease and cancer free survival rates and probability for the laparoscopic resection group. In addition to this evidence, one meta-analysis (Zhao et al., 2016) pooled data from three studies, and observed no differences in 3 year local recurrence between laparoscopic and open patients for all stages (1-3) of rectal cancer.
Similarly, for studies comparing disease free survival between other surgical resection methods (Han et al., 2012; Lezoche et al., 2012; Jayne et al., 2010), no significant differences were observed.
Grade B

Local recurrence
Nine RCTs compared 3 year, 5 year, and overall local recurrence rates between laparoscopic and open resection patients. Of these studies only one showed significant

	explained
C	**Some inconsistency, reflecting genuine uncertainty around question**
D	**Evidence is inconsistent**
NA	**Not applicable (one study only)**

differences between groups (Bonjer et al., 2015), with significantly higher 3 year local recurrence observed for middle rectal cancer patients in the laparoscopic intention to treat group (difference = 4.1%, 90%CI = 0.7, 7.5) and for lower rectal cancer patients in the open as treated group (difference = 8.9%, 90%CI = -15.6, -2.2). However, significance was determined through observation of 90% confidence intervals and it is questionable whether this difference would be significant at $\alpha = 0.05$. One study compared local recurrence between AR and APR patients (Jayne et al., 2010), however no significant differences were observed.
Studies comparing other resection types showed only one significant difference in local recurrence rates out of six RCTs. This study (Han et al., 2012) reported significantly higher local recurrence for patients undergoing conventional vs. cylindrical APR (mean difference = 16%, p = 0.048). Other comparisons (CIEMR vs EMR; TEMS vs LAR; TEMS vs LR; ELRR vs. TME), showed no significant differences between methods.
Grade B

Distant metastasis/distal recurrence
Seven RCTs compared 5 year, 3 year, and overall distant metastases between laparoscopic and open resection. Although no significant differences were observed in these studies, the rate of metastases was consistently lower or equal for laparoscopic vs. open patients. One study compared distant recurrence between AR and APR patients (Jayne et al., 2010), however no significant differences were observed.
The same non-significant effects were observed for other surgery comparisons when distant metastases was reported (Chen et al., 2013; Lezoche et al., 2005; Lezoche et al., 2008; Lezoche et al., 2012) indicating that TEMS had statistically similar rates of metastases when compared to LAR, LR and TME resections.
Grade A

Port site/wound metastases
Seven RCTs reported wound/port site metastases as an outcome between laparoscopic and open surgery. No significant differences were observed with five studies reporting 0% recurrence in both groups. Only one study (Zhou et al., 2004) showed slightly higher recurrence in the laparoscopic group (2.4% vs. 0%).
Grade A

Blood loss/transfusion
Of the 15 RCTs that compared blood loss as an outcome between laparoscopic and open surgery 12 reported significantly lower blood loss in the laparoscopic group with significant differences ranging from 17.5mL to 220.3mL (p=<0.001 to 0.036) . In addition to this, meta-analysis data from one study (Arezzo et al., 2014) showed the same significant effect in a

pooled analysis of four RTCs reporting a mean difference of 145mL (95% CI = -146.80, -58.90). The remaining three studies that reported non-significant differences also showed lower blood loss for the laparoscopic group (Fuji et al., 2014; Ng et al., 2008; Ng et al., 2009). Similarly the rate and amount of blood transfusions was lower in all six studies reporting this outcome, including one meta-analysis (Arezzo et al., 2013). However, only two studies showed this difference to be significant including one meta-analysis which pooled data from four studies (Arezzo et al., 2013; Arteaga Gonzalez et al. 2005). For RCTs comparing other surgical interventions, various significant differences were observed for blood loss and blood transfusion related outcomes. Studies comparing TEMS surgery against alternate resection revealed significantly lower blood loss for the TEMS group when compared to LAR (Chen et al., 2013: MD=53mL, p<0.001) and laparoscopic TME (Lezoche et al., 2005: MD=150mL, p<0.001; Lezoche et al., 2008: MD=155mL, p<0.001). Blood loss and blood transfusion rate was also significantly lower in one study (Lezoche et al., 2012) comparing ELRR patients to TME patients (MD=155mL, p<0.001, MD=20%, p<0.001) and another study comparing cylindrical to conventional APR patients (MD=100mL, p<0.001). Finally Chen et al., (2015) observed higher intraoperative blood transfusion rates in patients undergoing TEMS in comparison to those undergoing laparoscopic resection (*p*=0.002). **Grade B** **Length of hospital stay** Of the 14 RCTs that reported length of hospital stay as an outcome for laparoscopic versus open resection, five reported significantly shorter post-operative hospital stay in the laparoscopic group with differences ranging from 1.6 to 3.4 days (p=<0.001 to 0.036). The remaining studies showed mixed differences with a trend towards shorter hospital stays observed in the laparoscopic group in five studies. For other surgical interventions, three studies showed significantly shorter hospital stay for TEMS patients in comparison to LAR (Chen et al., 2013: MD=7.9 days, p<0.001) and laparoscopic TME patients (Lezoche et al., 2005, MD=3 days, p<0.001; Lezoche et al., 2008, MD=4 days, p<0.001). No significant difference was found for SPLRS vs CLS, and cylindrical versus conventional APR comparisons. Chen et al., (2015) observed longer stays in patients undergoing laparoscopic resection compared to TEMS resection (MD=3 days, *p*=0.001). **Grade B** **CRM positivity** The rate of CRM positive resections was observed in nine RCTs comparing open and laparoscopic resection. Six of these studies shower higher CRM positivity in open resection		

while the remaining three studies showed higher rates in laparoscopic resection, however no studies showed a significant difference between methods.
Grade B

Number of lymph nodes retrieved
Of the 13 studies that compared open and laparoscopic resection only one found a significant difference in the number of lymph nodes retrieved. This study (Lujan et al., 2009) found a higher number of mean lymph nodes retrieved in the laparoscopic group (MD=2.06, p=0.026). The reaming studies showed mixed non-significant differences between groups.
For other comparisons one study (Bulut et al., 2014) recorded lymph node retrieval which found that CLS resections retrieved more lymph nodes than in SPLRS resection patients however this effect was not significant (mean=19 vs. 14, p=0.143).
Grade C

Morbidity/complications
Observations of morbidity and peri/post-operative complications included rates of: overall complications/morbidity, reoperation, anastomotic leak, abdominal/pelvic abscess, wound complications, reoperation, ileus, haemorrhage, bowel obstruction, intraoperative injury, and hernia.
For overall morbidity and complications comparisons, both short and long term morbidity were both observed to be significantly higher in the open group compared to the laparoscopic group as reported by Ng et al. (2014) (p=0.43,0.030). Long term morbidity (>30 days) was also significantly higher in the open group as reported in Ng et al. (2009). The remaining studies found non-significant differences in morbidity and complications between groups with a trend towards higher rates in the open group.
For other interventions, major post-operative complications were observed as significantly higher in the ELRR compared to the TME group (Lezoche et al., 2012: RR=0.04, 95%CI=0.00, 0.66, p <0.001).
Otherwise, although a wide range of short and long term complications and morbidity were reported in 25 of the 27 included RCTs, and in one meta-analysis of nine RCTs (Arezzo et al., 2014), only two significant effects were observed across all studies in relation to specific adverse effects. The first effect was observed in the COLOR 2 a trial (Van der Pas et a., 2013) which showed significantly higher rates of intraoperative nerve injury in the open verses the laparoscopic resection group (0.7% vs. 0%, p=0.036). Secondly Lezoche et al., (2012) showed higher rates of major postoperative complications for patients undergoing TME resection compared to those receiving ELRR surgery (6% vs. 2%, RR=0.04, 95%CI=0.00, 0.66, p<0.001).
Grade B

Quality of life
Two RCTs reported postoperative quality of life change between laparoscopic and open resection patients (COLOR 2c, 2013; COREAN, 2010). The COLOR 2c trial reported no significant difference between groups at 4 weeks, 6 months and 12 months reported changes in quality of life and global health. Similarly the COREAN trial observed no significant difference between groups for three month postoperative quality of life change ($p>0.050$).
Grade A

Sexual function
Sexual function was reported as an outcome for open versus laparoscopic resection in three trials (COLOR 2 c, 2013; COREAN, 2010; MRC CLASICC b, 2005) and for cylindrical versus conventional APR patients in one study (Han et al., 2012). Although sexual function was negatively affected by all surgery, none of these studies observed significant differences between resection types.
Grade A

Postoperative pain
Only two studies investigated postoperative pain as a primary outcome. The first of these (Bulut et al., 2015) observed morphine use over 5 consecutive days following surgery and found no significant difference between patients undergoing SPLRS vs CLS surgery for any single day, or for total use. Secondly the COREAN trial (Kang et al., 2010) observed subjective postoperative pain for 3 days using two scales, the PPI and the VAS, between laparoscopic and open resection patients. This study observed significant differences between groups at day 1, 2 and 3 for the PPI scale with open patients having higher mean pain that laparoscopic ($p < 0.010$ for all three days). For the VAS scale open patients reported higher mean pain at day 1 ($p<0.050$) and day 3 ($p<0.010$) but not at day 2 ($p>0.050$).
Grade D

Conversion
Rates of conversion from laparoscopic to open were reported in 15 trials. Conversion ranged from 0 to 30.3%, with a median conversion of 7.9%. For other interventions conversion rates of 5-11.4% were observed.

3. Clinical impact *See body of evidence tables in report - p value (95% CI), size of effect rating and relevance of evidence (Indicate in the space below if the study results varied according to some <u>unknown</u> factor (not simply study quality or sample size) and thus the clinical impact of the intervention could not be determined)*		
Overall survival Evidence consistently showed no difference between any rectal cancer resection method in relation to rates of survival and survival probability at any time point. Although there was some trending evidence that laparoscopic had better survival outcomes than open surgery, these results ultimately suggest that the type of resection was independent of survival for open versus laparoscopic and other resection types including TEMS, LAR, laparoscopic TME, ELRR and cylindrical vs. conventional APR. **Grade C/D** **Mortality** Similarly to survival outcomes, no studies examining mortality found significant differences between any rectal cancer resection methods. Although a trend towards higher mortality in open resection odd these differences were typically small suggesting no relationship between mortality and resection type. **Grade C/D** **Disease free survival** There was no good evidence to suggest that disease free survival was different between open and laparoscopic resection with non-significant effects indicating no consistent differences between groups. **Grade C/D** **Local recurrence** There was no good evidence to suggest that local recurrence was different between open and laparoscopic resection with non-significant results showing no consistent differences between groups for laparoscopic versus open resection. There may be some difference between cylindrical and convention APR with lower local recurrence observed in the former group. **Grade C/D** **Distant metastasis/distal recurrence** Although metastases was consistently lower for laparoscopic surgery, there was no evidence to suggest any differences between laparoscopic and open resection and other resection types. **Grade C/D**	A	**Very large**
	B	**Substantial**
	C	**Moderate**
	D	**Slight/Restricted**

Port site/wound metastases There was no evidence to suggest that port-site wound metastases was a large risk for either open or laparoscopic groups with no evidence to suggest a difference between groups. **Grade C/D** **Blood loss/transfusion** Consistent significant differences were observed for RCT and meta-analysis data between laparoscopic and open resections. These results indicated lower mean intraoperative blood loss and transfusions for patients undergoing laparoscopic resections. Similarly there is some evidence that TEMS patients experienced less blood loss that LAR and LR patients. Blood loss was also lower for ELRR and Cylindrical APR patients in comparison to TME and Conventional APR patients respectively. **Grade B/C** **Length of hospital stay** Significantly shorter hospital stays were observed in laparoscopic patients in comparison to open resection patients with mixed evidence for non-significant effects. For other surgical interventions, three studies showed significantly shorter hospital stay for TEMS patients in comparison to LAR and laparoscopic TME patients. **Grade B/C** **CRM positivity** No consistent or significant evidence was found to suggest that the rate of CRM positive resection was different between laparoscopic and open resection patients. **Grade D** **Number of lymph nodes retrieved** Only one study found a higher number of mean lymph nodes retrieved in the laparoscopic group with the remaining studies showed mixed non-significant differences between groups. For other comparisons, one study found that CLS resections retrieved non-significantly more lymph nodes than in SPLRS resection patients. Overall this evidence suggests that lymph node retrieval was independent of resection type. **Grade D** **Morbidity/complications** Although a wide array range of short and long term complications and morbidities were reported across 24 RCTs and one meta-analysis study, only two significant effects were observed, one for higher nerve injury in open surgery and another reporting higher rates of		

major postoperative complications for patients undergoing TME resection compared to those receiving ELRR. Although many studies did not provide statistical comparisons for complications and morbidity data, overall these results suggest that rates of morbidity and post-operative complications where not influenced by the type of surgical intervention. **Grade C/D** **Quality of life** The limited evidence available indicating no significant difference in postoperative quality of life or perceived global health between open and laparoscopic resection groups. **Grade D** **Sexual function** Although sexual function was negatively affected by all surgery, there was no evidence to suggest a difference in sexual function between groups. **Grade D** **Postoperative pain** Although one study consistently reported lower postoperative pain for laparoscopic patients, there was very little evidence overall to suggest that those undergoing pen surgery experience significantly greater postoperative pain. **Grade D**		
4. Generalisability *(How well does the body of evidence match the population and clinical settings being targeted by the Guideline?) For study population characteristics see table of study characteristics in report*		
Studies included in this review were from a wide range of countries including Italy, Canada, The Netherlands, China, South Korea, Spain, UK, USA, Japan, Australia, New Zealand, and Denmark. Given that these studies are from a range of both Western and Asian countries the evidence may be somewhat generalisable to an Australian population, and surgical intervention and quality of treatment for rectal cancer may be comparable. When mean/median age was reported the large majority of participants were 60-70 years of age with, mean/median ages ranging from 44 to 80. **Grade B/C**	A	**Evidence directly generalisable to target population**
	B	**Evidence directly generalisable to target population with some caveats**
	C	**Evidence not directly generalisable to the target population but could be sensibly applied**
	D	**Evidence not directly generalisable to target population and hard to judge whether it is sensible to apply**

5. Applicability (Is the body of evidence relevant to the Australian healthcare context in terms of health services/delivery of care and cultural factors?)		
Although many studies included in this review were conducted on a Western population, where the treatment for early stage rectal cancer may be comparable to the Australian healthcare system, about half of the studies were conducted on an Asian population and important differences may exist in relation to practice of rectal cancer resection. **Grade B/C**	A	**Evidence directly applicable to Australian healthcare context**
	B	**Evidence applicable to Australian healthcare context with few caveats**
	C	**Evidence probably applicable to Australian healthcare context with some caveats**
	D	**Evidence not applicable to Australian healthcare context**

Other factors *(Indicate here any other factors that you took into account when assessing the evidence base (for example, issues that might cause the group to downgrade or upgrade the recommendation).*

EVIDENCE STATEMENT MATRIX

Please summarise the development group's synthesis of the evidence relating to the key question, taking all the above factors into account.

Component	Rating	Description
1. Evidence base	**D**	Level IV studies or Level I to III studies/SRs with a high risk of bias
2. Consistency	**C, N/A, C, A, C, D, A, N/A**	Grade C – Overall survival Grade N/A - Perioperative mortality Grade C – Disease free survival Grade A – Local recurrence Grade C - Distant metastasis Grade D - Post-operative complications Grade A - Stoma formation Grade N/A - Quality of life
3. Clinical impact	**D, D, D, D, C, D**	Grade D – Overall survival Grade D – Disease free survival Grade D – Local recurrence Grade D - Distant metastasis Grade C - Post-operative complications Grade D - Stoma formation and Quality of life

4. Generalisability	**C**	Evidence not directly generalisable to the target population but could be sensibly applied
5. Applicability	**B**	Evidence applicable to Australian healthcare context with few caveats

Evidence statements

Laparoscopic versus open resection:

For overall survival and mortality, there was no difference between patients undergoing laparascopic resection and patients undergoing open resection for rectal cancer.

There was no statistically significant difference in rates of local recurrence, distant metastases and disease-free survival between patients having an open approach and a laparoscopic approach to rectal cancer surgery.

Rates of blood transfusion and the amount of perioperative blood loss were consistently and significantly lower for patients undergoing laparascopic resection compared to patients undergoing open rectal cancer resection.

Length of hospital stay was significantly shorter for patients undergoing laparoscopic resection, compared with those undergoing open resection.

Rates of positive circumferential resection margins did not differ significantly between patients who underwent laparoscopic resection and those who underwent open resection, and reported differences did not consistently favour either approach.

Two recent large multicentre RCTs did not demonstrate pathological oncological equivalence of laparoscopic to open rectal resection. However, data on local recurrence and survival is not yet available.

Differences in the number of lymph nodes retrieved between patients who underwent laparoscopic resection and those who underwent open resection were mostly not statistically significant. One study observed that significantly more lymph nodes were retrieved among the laparoscopic group.

Although sexual function was negatively affected by all surgery, no difference between patients receiving laparoscopic and open resection for rectal cancer was observed.

Comparisons between other surgical approaches:

Transanal endoscopic microsurgery was associated with reductions in blood loss and length of hospital stay, compared with laparoscopic total mesorectal excision and low anterior resection.

No consistent significant differences between groups in were observed for survival or quality-of-life outcomes in RCTs comparing the following:

- transanal endoscopic microsurgery versus laparoscopic lower anterior resection
- endoluminal locoregional resection versus laparoscopic total mesorectal excision
- transanal endoscopic versus total mesorectal laparoscopic resection.

Postoperative pain:

Of two studies that reported postoperative pain, one found that single-port laparoscopic resection was associated with significantly less pain within 3 days of surgery than conventional laparoscopic resection.

RECOMMENDATION *What recommendation(s) does the guideline development group draw from this evidence? Use action statements where possible.*	**GRADE OF RECOMMENDATION** **C**

Open surgery is the standard approach for resection of rectal cancer. Laparoscopic resection can be considered in selected cases if the surgical expertise (including advanced laparoscopic skills) and hospital infrastructure are available noting that it is a technique that has yet to be proven safe and efficacious in all patients for rectal cancer.

PRACTICE POINT (CONSENSUS-BASED RECOMMENDATION)

If there is no good quality evidence available but there is consensus among Guideline committee members, a consensus-based recommendation (practice point) can be given.

Practice points:

- Regardless of the approach utilised, rectal cancer resection must be undertaken by surgeons who have been appropriately trained in surgical resection of rectal cancer, utilising the principles of total mesorectal resection as

proposed by Heald.[40] This should include sharp dissection undertaken along the mesorectal plane. Surgical resection undertaken by inadequately trained surgeons is likely to result in inferior oncological outcomes.

- Case selection is important, as it is suboptimal to generalise the surgical approach for rectal cancer to all patients. Factors such as patient body mass index, tumour stage, and surgeon experience are important considerations when determining whether a laparoscopic or open approach is optimal for the patient.

- The laparoscopic approach may have a higher potential for an inferior quality TME specimen, as demonstrated by two recent multicentre RCTs, though long-term outcome data is not yet available on these studies (Fleshman et al 2015, Stevenson et al 2015). Two other large multicentre RCTs have reported long-term outcomes with no difference in local recurrence or survival (Jeong et al 2015, Bonjer et al 2015). The surgeon should discuss with the patient the potential impact on oncological outcome of the laparoscopic approach along with the potential improvements on short term recovery.

CONSIDERATIONS

Laparoscopic resection of rectal cancer would be considered preferable in terms of reduced length of stay and blood loss, however case selection is important when considering whether a laparoscopic or open approach is optimal. Overall pathological equivalence has yet to be proven and in the decision over which approach is optimal for a particular case, oncological principles must not be compromised.

Long-term local recurrence and survival data for two of the recent large randomised control trials which have not demonstrated pathological equivalence between open and laparoscopic rectal resection are awaited. Long-term local recurrence and survival data are available for two other multicentre randomised controlled trials comparing open and laparoscopic rectal cancer resection which do demonstrate equivalence. Whilst laparoscopic resection appears equivalent to open resection, when undertaken by surgeons who have had appropriate training and experience, it is likely that there are some case where a laparoscopic approach is not optimal with due consideration of patient, tumour and surgeon factors.

Table 2: Unresolved issues

UNRESOLVED ISSUES *If needed, keep note of specific issues that arise when each recommendation is formulated and that require follow-up.*
More longer-term evidence is needed from RCTs comparing survival data for laparoscopic versus open resection, especially from recent multicentre RCT trials. RCT evidence regarding the role of alternative approaches, such robotic resection or transanal total mesorectal excision, is required before conclusions can be made on their role.

Table 3: Implementation of recommendation

IMPLEMENTATION OF RECOMMENDATION *Please indicate yes or no to the following questions. Where the answer is yes please provide explanatory information about this. This information will be used to develop the implementation plan for the guidelines.*	
Will this recommendation result in changes in usual care? This review included RCTs from a wide range of countries, including Australia and New Zealand. Although about half of the studies were conducted in Asian populations, the evidence may be generalisable to an Australian population. However, there may be some important differences in the practice of rectal cancer resection. Whilst laparoscopic resection of rectal cancer appears to have equivalent oncological outcomes to open surgery and some potential benefits to the patient over open surgery, it is essential that surgeons have been formally trained in laparoscopic rectal resection prior to undertaking this procedure.	**NO**
Are there any resource implications associated with implementing this recommendation?	**NO**

Will the implementation of this recommendation require changes in the way care is currently organised?	**NO**
Are the guideline development group aware of any barriers to the implementation of this recommendation?	**NO**